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EXAMINER	
CHOI, PETER H	
ART UNIT	**PAPER NUMBER**
3623	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/10/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	09/801,130	BONABEAU, ERIC W.	
	Examiner	Art Unit	
	Peter Choi	3623	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 December 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *44-65* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *44-65* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Summary Of Instant Office Action

1. In the amendment received December 20, 2006, Applicant has canceled claims 1-7, 9-17, 19-27, 34-35 and 38-39, and has amended claims 44, 54, 55, and 65. Claims 44-65 are currently pending the application and have been examined on the merits discussed below in this **FINAL** Office Action.

Response to Arguments

2. Applicant's arguments filed December 20, 2006 have been fully considered but they are not persuasive.

Applicant argues that independent claims 44, 54, 55, and 65 adds the step of evaluating the fitness of a particular evolving business model in an environment or ecosystem which includes other business models, where other models also are simultaneously evolving in the same dynamic business environment or ecosystem. Applicant points out that prior art approaches do not take into account, that as a business model evolves in the real world, other businesses in the business ecosystem or environment may themselves also evolve, in part in response to the evolution of the very business model itself. Applicant also points out that competing business will adapt to the evolving business model by modifying their behavior in response to the evolving business model under study.

The Examiner respectfully disagrees. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., dynamic evolution and comparison of business models between competing businesses) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

The claim amendments set forth that the each of the plurality of business models are in competition with other business models for solving a business problem. The Examiner asserts that this step is taught by Shinagawa et al., in that each candidate model is in direct competition with other candidate models for selection to be subjected to a crossover/mutation process in creating the next generation of candidate models. Each candidate model has evolved from the previous generation of candidate models, and parameters of the model (i.e., evolvable characteristic of the business model) and the business ecosystem are subject to change [Column 4, lines 22-25]

Based on the Applicant's arguments and the Interview conducted on December 18th, 2006, it appears that the intention of the claim amendments was to set forth the step of business models and business environments/ecosystems dynamically evolving simultaneously, resulting in the fitness test function of the genetic algorithm being based

on dynamically changing parameters, as opposed to static parameters throughout the enter genetic algorithm process.

However, the claim amendments do not exactly set forth the limitations as intended. While the amended claims sets forth that there is a competition between models, it does not distinguish from the natural competition between models in the genetic algorithm process (where, as explained above, every candidate model is in competition with each other candidate model for selection to be subjected to a crossover/mutation process in creating the next generation of candidate models), and further appears to be intended towards a competition between models of distinctive entities that exist within a business ecosystem; the distinctive entities being competitors of an organization, as opposed to the business models themselves. For example, a competition between the business models of Delta Airlines, United Airlines, and US Airways within the business ecosystem of consumer aviation. In this example, the business model of Delta Airlines is in competition with the business models of United Airlines and US Airways. The Examiner suggests that the Applicant incorporate language to clearly distinguish that the models being compared belong to an organization's competitors, and are not candidate models of a single organization. The Examiner also suggests that the Applicant incorporate language to make clear that the business problem is also subject to evolution, as both the parameters of the problem and candidate solutions dynamically change, which impact the determination of fitness for evolution.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 44-65 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 44, 54, 55, and 65 claim the step of a plurality of computer-evolvable business models, "each having an ability to be in competition with other computer-evolvable business models for solving the said business problem".

It is unclear what is meant by this step. Is the competition held internally or externally within the business ecosystem? An example of an internal competition would be where a single strategy (embodied by a business model) from a plurality of candidate strategies is selected to solve a business problem, where the business ecosystem is the specific parameters and environment of a single organization. An example of an external competition would be where a strategy (i.e., business model) of one organization is in competition with the strategy (i.e., business models) of other organizations within the business ecosystem. For example, a competition between the business models of Delta Airlines, United Airlines, and US Airways within the business ecosystem of consumer aviation. In this example, the business model of Delta Airlines

is in competition with the business models of United Airlines and US Airways. The level of competition is unclear from the wording of the claims.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 44-65 are rejected under 35 U.S.C. 103(a) as being unpatentable over Keane (U.S Patent #5,737,581) in view of Shinagawa et al (U.S Patent #5,897,629).

As per claim 44, Keane teaches a method for choosing a business model to solve a selected business problem, the method comprising:

(a) describing a plurality of computer business models **(memory 102 contains at least a quality model 104 and possibly other models, such as business 105, accounting 106, consumer 107, financial 108, and macroeconomic 109)**, [Column 3, lines 25-30, Column 7, lines 6-8 and Figure 1 {104, 105, 106, 108 and 109}], each describing operations of businesses for solving said business problem **(enable a user to make certain decisions regarding which quality assurance measures to install; business model 400)** [Figure 4 {400}, described Column 2, lines

52-55 and Column 7, line 6 - Column 8, line 25], and having an ability to respond to a customer model patronizing it by sending at least one value **(product purchased data 214 and market demand and returns data 227)** to the said customer model **(business model receives information regarding consumer returns from Block 807 of the consumer model)** [Column 5, lines 28-55, Column 8, lines 16-18, Figure 4 described in Column 7, line 5-column 8, line 25];

(b) describing a business-model environment comprising a business ecosystem containing said plurality of business models and further containing at least one customer model having an ability to choose to patronize one or more of said business models in the said business ecosystem, based at least in part upon at least one evolvable characteristic of the said business models **(business model receives information regarding consumer returns from Block 807 of the consumer model, product purchased data 214, market demand and returns data 227; the labor rate is considered a parameter and subject to change while the type of business and characteristic defects are constant relative to a particular business; data such as the nature of the company, the characteristic defects and causes, and past performance is made resident in memory 102 by Block 52. This data customizes a particular business to provide realistic product flow and defects, rather than operating as a preset, arbitrary model. In one particular embodiment, a user may customize "defects" to his particular business to more realistically emulate the characteristic and cause of a defect)** [Column 3, lines 48-55, Column 4, lines 23-26,

Column 5, lines 28-55, Column 8, lines 16-18, Figure 4 described in Column 7, line 5-column 8, line 25];

(c) determining an operational performance of each said business model in the business ecosystem containing said plurality of business models and further containing at least one customer model having an ability to choose to patronize one or more of said evolvable business models in the said business ecosystem **(product purchased data 214 and market demand and returns data 227; business model receives information regarding consumer returns from Block 807 of the consumer model)** [Column 5, lines 28-55, Column 8, lines 16-18, Figure 4 described in Column 7, line 5-column 8, line 25] by simulating [Column 4, lines 34-36 and Figs. 2 and 4, wherein execution (or implementation) of steps of the Figures and simulation of the system infer operations for determining performance of business(es) in accordance with above discussed plurality of business models]:

(i) the said plurality of business models **(memory 102 contains at least a quality model 104 and possibly other models, such as business 105, accounting 106, consumer 107, financial 108, and macroeconomic 109)**; [Figure 1 {100 and 104, 105, 106, 108, 109}, and Column 3, lines 25-30] and

(ii) the said at least one customer model **(consumer model 107)** [Figure 1 {100 and 104, 105, 106, 108, 109}, and Column 3, lines 25-30]; and

(iii) one or more interactions between evolvable business models and customer models in which at least one of said customer models chooses to patronize at least one of said business models in the said business ecosystem,

based at least in part upon one evolvable characteristic **(the labor rate is considered a parameter and subject to change while the type of business and characteristic defects are constant relative to a particular business; data such as the nature of the company, the characteristic defects and causes, and past performance is made resident in memory 102 by Block 52. This data customizes a particular business to provide realistic product flow and defects, rather than operating as a preset, arbitrary model. In one particular embodiment, a user may customize "defects" to his particular business to more realistically emulate the characteristic and cause of a defect)** of the said evolvable business models, and at least one of said patronized business models responds by sending at least one value to the said at least one customer model; **(business model receives information regarding consumer returns from Block 807 of the consumer model, product purchased data 214, market demand and returns data 227)** [Column 3, lines 48-55, Column 4, lines 23-26, Column 5, lines 28-55, Column 8, lines 16-18, Figure 4 described in Column 7, line 5-column 8, line 25];

(d)(i) at least one customer model having an ability to choose to patronize one or more of said plurality of evolvable business models **(product purchased data 214 and market demand and returns data 227; business model receives information regarding consumer returns from Block 807 of the consumer model)** wherein the said operational performance of the said evolvable business model is affected by at least one evolvable characteristic of one or more other of the said plurality of business

models in the said business ecosystem **(the labor rate is considered a parameter and subject to change while the type of business and characteristic defects are constant relative to a particular business; data such as the nature of the company, the characteristic defects and causes, and past performance is made resident in memory 102 by Block 52. This data customizes a particular business to provide realistic product flow and defects, rather than operating as a preset, arbitrary model. In one particular embodiment, a user may customize "defects" to his particular business to more realistically emulate the characteristic and cause of a defect)** [Column 3, lines 48-55, Column 4, lines 23-26, Column 5, lines 28-55, Column 8, lines 16-18, Figure 4 described in Column 7, line 5-column 8, line 25];

(e) repeating steps (c) and (d) at least one time **(running another period of the model)**, each said repetition of (c) simulating the plurality of business models resulting from the previous repetition of step (d) [Figure 2 {254}, column 4, lines 34-38 recited with column 6, lines 39-49, wherein "simulation continues" after the determination made at step 254, and "user given the opportunity to reconfigure (generate) next (or new) quality model to improve performance" inferring claimed "repeating the steps" for simulating models obtained in the prior (or previous) steps as per user's choice of steps including (c) and (d)]; and

(f) choosing the business model for solving the selected business problem based at least in part upon the determined fitness of the said business model **(enable a user to make certain decisions regarding which quality assurance measures to install; business model 400; which is inferred by the enablement of a user to**

make certain decisions regarding which quality assurance measures to install) [Figure 4 {400}, described Column 2, lines 52-55 and Column 7, line 6 - Column 8, line 25, Figure 1 {105} and column 2, lines 54-55].

Keane does not teach the use of evolvable business models, or the steps of:

(a), (c), and (d)(i) each computer-evolvable business model having an ability to be in competition with other computer-evolvable business models for solving the said business problem;

(d) generating a next plurality of evolvable business models from the said plurality of evolvable business models by performing an evolutionary method including:

(i) for at least one of said evolvable business models, determining aid model's fitness based at least in part upon the operational performance of the said evolvable business model in the said business ecosystem containing said plurality of evolvable business models;

(ii) selecting at least one of said evolvable business models based at least in part upon the said at least one model's determined fitness, and

(iii) transforming the at least one selected evolvable business model into new evolvable business models incorporating at least one element of said at least one selected evolvable business model, by applying at least one genetic operator;

Shinagawa et al. is directed to utilizing genetic algorithm to find an optimal solution to a problem, resulting in the creation of new and modified delivery routes.

Shinagawa et al teaches the step of:

(a), (c), and (d)(i), each computer-evolvable business model has an ability to be in competition with other computer-evolvable business models for solving the said business problem **(a population of individuals (i.e., candidate solutions) are created, which initial population is called the first generation. Then the selection is made on the first generation. In this selection process, the fitness value of each individual is calculated from its chromosome expressed in a linear string of genes. A new population is selected from among the current individuals in such a way that the individuals having higher fitness values will survive at higher probabilities)** [Column 2, lines 27-36];

(d) generating **(producing)** a next plurality of evolvable **[the application of a genetic algorithms renders the models used as being evolvable]** business models **(new proposed delivery plans)** by performing an evolutionary method [Column 5, line 66 through column 6, line 54, wherein delivery planning unit 12 producing or "generating" a set or "plurality" of modified or new proposed delivery plans as indicated by column 6, lines 35-40; modified delivery route serving as new or next route and on finalizing said modified or new or next routes for all carriers, delivery planning unit 12 producing or generating new or next delivery plans which are termed as proposed delivery plans; said delivery plans are models, lines 50-52. Moreover, said delivery models or plans representing "business models", since they relate to the business of delivery of packages, lines 52-54, and cited genetic algorithm, Column 4, lines 63-65;

searching strategy optimization means 1 creates individuals 3a-3c using a genetic algorithm. The individuals 3a-3c have their respective chromosomes, each of which indicates a strategy for solution search, Column 4, lines 29-34] including:

(i) determining business-model fitness in dependence on the evolvable business-model models based at least in part upon the operational performance of the said evolvable business model in the business ecosystem containing said plurality of evolvable business models [Column 6, lines 15-23, wherein "evaluating fitness" of proposed delivery plans or models indicating "determining business model fitness" and said fitness relating to "operational business model performance" as discussed in claim 1c above; The carrier allocation unit 11 evaluates the fitness of each proposed delivery plan received from the delivery planning unit 12, Column 9, lines 12-14; The carrier allocation unit 11 evaluates chromosomes 50, 50a, and 50b by calculating the fitness values of delivery plans 41, 42, and 43 derived from them, respectively, Column 9, lines 21-24];

(ii) selecting at least one of said evolvable business models based at least in part upon the said at least one model's determined fitness [Column 6, lines 15-23, wherein allocation unit 11 "selecting fittest individuals based on their fitness values", and cited individuals pointing to delivery plans or models or "business models", column 2, lines 22-23: individuals being candidate solutions, and said solutions are delivery plans, column 6, lines 21-23: choosing delivery plans or models as the optimal solutions; Based on the fitness values, the carrier

allocation unit 11 selects a plurality of individual pairs, Column 9, lines 15-16]; and

(iii) transforming the at least one selected evolvable business model into new evolvable business models incorporating at least one element of said at least one selected evolvable business model, by applying one or more genetic operators [Column 5, lines line 66 through column 6, line 3, wherein applying genetic algorithm and its operators crossover, mutation etc. indicating reference's performing "transformation or transforming" above discussed selected delivery plans or models or business models into above discussed next or new delivery plans or business models] directly to the business models, wherein the new business models incorporate elements of the selected business models **(The mated parent individuals are then subjected to a crossover process. Crossover algorithms combine one part of one parent chromosome with the other part of the other parent chromosome to produce another chromosome, thereby producing a new individual. The offspring individual produced through such a crossover process inherits some traits from both parents)** [Column 2, lines 37-43].

Keane teaches the step of simulating quality of a business's product flow, yet Keane does not expressly teach the application of a genetic algorithm comprising selection, crossover and mutation operators for building a fittest business model. However, Shinagawa et al. discloses the use of genetic algorithms that perform the

steps of performing an evolutionary method on models, including determining model fitness, selection of models based on their fitness, and transforming models by applying genetic operators to yield new models that incorporate elements of the original models. Both Keane and Shinagawa et al. are directed toward optimizing solutions in business planning situations [e.g., Keane's simulator assists a user in making business performance decisions, as seen in Column 2, lines 52-55, and Shinagawa et al. solves commodity delivery problems, as seen in Column 3, lines 1-7]. Shinagawa et al. provides a user with a problem solver "for solving mathematical programming problems, which is capable of finding better solutions at a higher speed" [Column 3, lines 13-16]. Keane's system assists a user with solving mathematical problems as well [Column 2, lines 1-23]; therefore, the Examiner submits that it would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to incorporate the steps of performing an evolutionary method on models, including determining model fitness, selection of models based on their fitness, and transforming models by applying genetic operators to yield new models that incorporate elements of the original models, as taught by Shinagawa et al, with Keane's financial simulations in order to allow Keane to solve its financial business (i.e., mathematical programming) problems with better solutions and at a higher speed [as suggested in Column 3, lines 13-16 of Shinagawa et al.], and the combination would provide a system enabling a user to efficiently and quickly solve multi-constraint problems as commonly faced by businesses, and for use as a planning guide to determine the impact of different models on business performance.

As per claim 45, Keane teaches the method of claim 44, wherein an evolvable business model **(memory 102 contains at least a quality model 104 and possibly other models, such as business 105, accounting 106, consumer 107, financial 108, and macroeconomic 109)**, [Column 3, lines 25-30, Column 7, lines 6-8 and Figure 1 {104, 105, 106, 108 and 109}] comprises at least one building block **(capital, material and labor requirements of quality assurance measures and production, product pricing, etc.)**.

As per claim 46, Keane teaches the method of claim 45, wherein the said at least one building block is chosen from a group consisting of:

(a) at least one value proposition building block, each said value proposition building block comprising a description of at least one of: natures of one or more goods or services provided, qualities of the said goods or services provided, customers for said goods and services provided, relations with other business models, and marketing to customers or business models **(goods/services purchased by customers, returning defective merchandise and switching to competitive produces due to defects)** [Column 5, lines 29-55];

(b) at least one operational approach building block, each said operational approach building block comprising a description of at least one of: inputs needed for one or more goods or services provided, technology employed to produce said goods or services provided, and capital and labor needed to produce said goods or services

provided **(costs associated with production, including the capital, labor and material requirements, physical requirements of the plant, warehouse, etc.)** [Column 5, lines 12-14 and 29-30 recited with column 4, lines 2-10]; and

(c) at least one revenue mechanism building block, each said revenue mechanism building block comprising a description of at least one of: a margin or an amount per transaction, a margin or an amount per unit time, a margin or an amount per unit volume, a transaction pricing mechanism, a subscription pricing mechanism, a flat rate pricing mechanism, and a membership fee pricing mechanism **(pricing information for the product, initial stock price and book value, cost requirements for quality assurance measures and production)** [Figure 1 {106, 108}, column 4, lines 2-18 and column 2, line 55].

As per claim 47, Keane teaches the method of claim 44, wherein each evolvable business model **(memory 102 contains at least a quality model 104 and possibly other models, such as business 105, accounting 106, consumer 107, financial 108, and macroeconomic 109)**, [Column 3, lines 25-30, Column 7, lines 6-8 and Figure 1 {104, 105, 106, 108 and 109}] has associated with it a performance model **(which is inferred by the enablement of a user to make certain decisions regarding which quality assurance measures to install)** [Figure 1 {105} and column 2, lines 54-55].

As per claim 48, Keane teaches the method of claim 47, wherein the said performance model comprises a financial model **(financial model 108)** [Column 3, lines 25-27].

As per claim 49, Keane teaches the method of claim 48, wherein the said financial model determines at least one of revenue, profit, market share, and market capitalization **(goods/services purchased by customers, returning defective merchandise and switching to competitive produces due to defects, product purchased data 214 and market demand and returns data 227)** [Column 5, lines 29-55].

As per claim 50, Keane teaches the method of claim 44, wherein the business ecosystem further comprises at least one supplier model which has the ability to interact with at least one of said plurality of evolvable business models **(business model receives information regarding consumer returns from Block 807 of the consumer model)** [Column 5, lines 28-55, Column 8, lines 16-18, Figure 4 described in Column 7, line 5-column 8, line 25], and wherein determining an operational performance of an evolvable business model further comprises simulating the said at least one supplier model, and one or more interactions between evolvable business models, supplier models, and/or customer models **(goods/services purchased by customers, returning defective merchandise and switching to competitive produces due to**

defects, product purchased data 214 and market demand and returns data 227) [Column 5, lines 29-55].

As per claim 51, Keane does not explicitly teach the method of claim 44, wherein said at least one genetic operator comprises a cross-over operator which transforms at least two parent evolvable business models into at least one new evolvable business model by combining characteristics of both parent business models into characteristics of the at least one new evolvable business model.

Keane teaches business models (as discussed above) but not cross-over operators which transform at least two parent business models into at least one new business model by combining characteristics of both parent business models into the characteristics of the at least one new business model. However, Shinagawa et al teaches a cross-over process combining one part of one parent chromosome with the other part of the other parent chromosome to produce another chromosome, thereby producing a new individual [Column 2, lines 37-43].

Keane teaches the step of simulating quality of a business's product flow, yet Keane does not expressly teach the application of a genetic algorithm comprising selection, crossover and mutation operators for building a fittest business model. However, Shinagawa et al. discloses the use of genetic algorithms that perform the steps of performing an evolutionary method on models, including determining model

fitness, selection of models based on their fitness, and transforming models by applying genetic operators to yield new models that incorporate elements of the original models. Both Keane and Shinagawa et al. are directed toward optimizing solutions in business planning situations [e.g., Keane's simulator assists a user in making business performance decisions, as seen in Column 2, lines 52-55, and Shinagawa et al. solves commodity delivery problems, as seen in Column 3, lines 1-7]. Shinagawa et al. provides a user with a problem solver "for solving mathematical programming problems, which is capable of finding better solutions at a higher speed" [Column 3, lines 13-16]. Keane's system assists a user with solving mathematical problems as well [Column 2, lines 1-23]; therefore, the Examiner submits that it would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to incorporate the steps of performing an evolutionary method on models, including determining model fitness, selection of models based on their fitness, and transforming models by applying genetic operators to yield new models that incorporate elements of the original models, as taught by Shinagawa et al, with Keane's financial simulations in order to allow Keane to solve its financial business (i.e., mathematical programming) problems with better solutions and at a higher speed [as suggested in Column 3, lines 13-16 of Shinagawa et al.], and the combination would provide a system enabling a user to efficiently and quickly solve multi-constraint problems as commonly faced by businesses, and for use as a planning guide to determine the impact of different models on business performance.

As per claim 52, although not taught by Keane, Shinagawa et al. teaches the method of claim 44, wherein said at least one genetic operator comprises a mutation operator **(mutation process)** which transforms a parent evolvable business model into a new evolvable business model by modifying a characteristic of the parent business model **(changes genes located in certain loci of a chromosome to other values, thereby producing a new individual; The mated parent individuals are then subjected to a crossover process. Crossover algorithms combine one part of one parent chromosome with the other part of the other parent chromosome to produce another chromosome, thereby producing a new individual. The offspring individual produced through such a crossover process inherits some traits from both parents)** [Column 2, lines 37-49].

Keane teaches the step of simulating quality of a business's product flow, yet Keane does not expressly teach the application of a genetic algorithm comprising selection, crossover and mutation operators for building a fittest business model. However, Shinagawa et al. discloses the use of genetic algorithms that perform the steps of performing an evolutionary method on models, including determining model fitness, selection of models based on their fitness, and transforming models by applying genetic operators to yield new models that incorporate elements of the original models. Both Keane and Shinagawa et al. are directed toward optimizing solutions in business planning situations [e.g., Keane's simulator assists a user in making business performance decisions, as seen in Column 2, lines 52-55, and Shinagawa et al. solves

commodity delivery problems, as seen in Column 3, lines 1-7]. Shinagawa et al. provides a user with a problem solver "for solving mathematical programming problems, which is capable of finding better solutions at a higher speed" [Column 3, lines 13-16]. Keane's system assists a user with solving mathematical problems as well [Column 2, lines 1-23]; therefore, the Examiner submits that it would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to incorporate the steps of performing an evolutionary method on models, including determining model fitness, selection of models based on their fitness, and transforming models by applying genetic operators to yield new models that incorporate elements of the original models, as taught by Shinagawa et al, with Keane's financial simulations in order to allow Keane to solve its financial business (i.e., mathematical programming) problems with better solutions and at a higher speed [as suggested in Column 3, lines 13-16 of Shinagawa et al.], and the combination would provide a system enabling a user to efficiently and quickly solve multi-constraint problems as commonly faced by businesses, and for use as a planning guide to determine the impact of different models on business performance.

As per claim 53, Keane teaches the method of claim 44, wherein a business model comprises a description of at least one of inputs to a business, values output from the said business, transformations of inputs into said business to values output from said business at least in part by the use of capital and labor, and at least one pricing model for said business **(costs associated with production, including the**

capital, labor and material requirements, physical requirements of the plant, warehouse, etc.; business model receives information regarding consumer returns from Block 807 of the consumer model, product purchased data 214, market demand and returns data 227) [Column 4, lines 2-10, Column 5, lines 12-14, 16-18, 28-55, Column 8, lines 16-18, Figure 4 described in Column 7, line 5-column 8, line 25].

Claim 54 recites limitations already addressed by the rejection of claim 44 above; therefore, the same rejection applies.

Furthermore, Keane teaches a plurality of computer-evolvable business models, each describing operations of a business for solving said business problem, each having an ability to be in competition with other computer-evolvable business models for solving the said business problem, each having an ability to respond to a customer model patronizing it by sending at least one value to the said customer model, each having associated with it a performance model comprising a financial model **(financial model 108)** [Column 3, lines 25-27] which has the ability to determine at least one of revenue, profit, market share and market capitalization **(costs associated with production, including the capital, labor and material requirements, physical requirements of the plant, warehouse, etc.; business model receives information regarding consumer returns from Block 807 of the consumer model, product purchased data 214, market demand and returns data 227; goods/services**

purchased by customers, returning defective merchandise and switching to competitive produces due to defects, product purchased data 214 and market demand and returns data 227) [Column 4, lines 2-10, Column 5, lines 12-14, 16-18, 28-55, Column 8, lines 16-18, Figure 4 described in Column 7, line 5-column 8, line 25].

Claim 55 recites limitations already addressed by the rejection of claim 44 above; therefore, the same rejection applies.

Furthermore, Keane is implemented on a computer-readable medium having computer-readable signals stored thereon that define instructions which, as a result of being executed in a computer system having a user interface including a display and an input device **(system 100 includes a central processor unit 101, memory 102 and a user interface 103. the user interface may comprise traditional equipment such as a monitor and printer for displaying information for the user and a keyboard and mouse for entering information)**, instruct the computer system to perform a method for choosing a business model to solve a selected business problem [Column 3, lines 17-21].

As per claim 56, Keane teaches a computer-readable medium according to claim 55, wherein an evolvable business model comprises at least one building block **(memory 102 includes at least a quality model 104 and possibly other models,**

such as business 105, accounting 106, consumer 107, financial 108, and macroeconomic 109) [Column 3, lines 25-30, Column 7, lines 6-8 and Figure 1 {104, 105, 106, 108 and 109}].

As per claim 57, Keane teaches a computer-readable medium according to claim 56, wherein the said at least one building block is chosen from a group consisting of:

(a) at least one value proposition building block, each said value proposition building block comprising a description of at least one of:

(i) natures of one or more goods or services provided **(consumer model 107 emulates the goods/services purchased by customer)** [Column 5, lines 29-36];

(ii) qualities of the said goods or services provided **(defective products exchanged by customers; likelihood of switching, and likelihood of returns)** [Column 4, lines 15-16, Column 5, lines 29-36];

(iii) customers for said goods and services provided **(the number of consumers who purchase products from the business begins at an initial level and increases as a result of advertising and decreases as a result of dissatisfaction with defective products during a given period)** [Column 5, lines 32-36];

(iv) relations with other business models **(the business and quality models may be applied to the market demand and returns data 214 to adjust the product flow accordingly and to handle the returns)** [Column 5, lines 51-54]; and

(v) marketing to customers or business models **(consumer model includes effectiveness of advertising, likelihood of switching, and likelihood of returns)** [Column 4, lines 15-16];

(b) at least one operational approach building block, each said operational approach building block comprising a description of at least one of:

(i) inputs needed for one or more goods or services provided **(costs associated with production, including the capital, labor and material requirements, physical requirements of the plant, warehouse, etc.)** [Column 4, lines 2-10, Column 5, lines 12-14, 16-18, 28-55, Column 8, lines 16-18, Figure 4 described in Column 7, line 5-column 8, line 25],

(ii) technology employed to produce said goods or services provided **(costs associated with production, including the capital, labor and material requirements, physical requirements of the plant, warehouse, etc.)** [Column 4, lines 2-10]; and

(iii) capital and labor needed to produce said goods or services provided **(costs associated with production, including the capital, labor and material requirements, physical requirements of the plant, warehouse, etc.)** [Column 4, lines 2-10, Column 5, lines 12-14, 16-18, 28-55, Column 8, lines 16-18, Figure 4 described in Column 7, line 5-column 8, line 25]; and

(c) at least one revenue mechanism building block, each said revenue mechanism building block comprising a description of at least one of a margin or an amount per transaction **(pricing information for the product)**, a margin or an amount

per unit time, a margin or an amount per unit volume, a transaction pricing mechanism, a subscription pricing mechanism, a flat rate pricing mechanism and a membership fee pricing mechanism [Column 4, lines 2-18 and Column 2, line 55].

As per claim 58, Keane teaches a computer-readable medium according to claim 55, wherein each evolvable business model has associated with it a performance model **(accounting model 106 is based on an accounting system, which in this particular embodiment is GAAP)** [Column 5, lines 15-17].

As per claim 59, Keane teaches a computer-readable medium according to claim 58, wherein the said performance model comprises a financial model **(financial model 108)** [Column 3, lines 25-27].

As per claim 60, Keane teaches a computer-readable medium according to claim 59, wherein the said financial model determines at least one of revenue, profit, market share and market capitalization **(goods/services purchased by customers, returning defective merchandise and switching to competitive products due to defects, product purchased data 214 and market demand and returns data 227)** [Column 5, lines 29-55].

As per claim 61, Keane teaches a computer-readable medium according to claim 55, wherein the business ecosystem further comprises at least one supplier model

which has the ability to interact with at least one of said plurality of evolvable business models, and wherein determining an operational performance of an evolvable business model further comprises simulating the said at least one supplier model, and one or more interactions between evolvable business models, supplier models, and/or customer models **(Figures 3-10 show flow charts representing the process of each model as well as the interaction between the models)** [Column 1, lines 11-12 and Column 6, lines 52-55].

As per claim 62, Keane does not explicitly teach a computer-readable medium according to claim 55, wherein said at least one genetic operator comprises a cross-over operator which transforms at least two parent business models into at least one new evolvable business model by combining characteristics of both parent business models into characteristics of the at least one new evolvable business model.

Keane teaches business models (as discussed above) but not cross-over operators which transform at least two parent business models into at least one new business model by combining characteristics of both parent business models into the characteristics of the at least one new business model. Keane teaches the step of simulating quality of a business's product flow, yet Keane does not expressly teach the application of a genetic algorithm comprising selection, crossover and mutation operators for building a fittest business model.

However, Shinagawa et al. discloses the use of genetic algorithms that perform the steps of performing an evolutionary method on models, including determining model fitness, selection of models based on their fitness, and transforming models by applying genetic operators to yield new models that incorporate elements of the original models. Shinagawa et al teaches a cross-over process combining one part of one parent chromosome with the other part of the other parent chromosome to produce another chromosome, thereby producing a new individual [Column 2, lines 37-43].

Both Keane and Shinagawa et al. are directed toward optimizing solutions in business planning situations [e.g., Keane's simulator assists a user in making business performance decisions, as seen in Column 2, lines 52-55, and Shinagawa et al. solves commodity delivery problems, as seen in Column 3, lines 1-7]. Shinagawa et al. provides a user with a problem solver "for solving mathematical programming problems, which is capable of finding better solutions at a higher speed" [Column 3, lines 13-16]. Keane's system assists a user with solving mathematical problems as well [Column 2, lines 1-23]; therefore, the Examiner submits that it would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to incorporate the steps of performing an evolutionary method on models, including determining model fitness, selection of models based on their fitness, and transforming models by applying genetic operators to yield new models that incorporate elements of the original models, as taught by Shinagawa et al, with Keane's financial simulations in order to allow Keane to solve its financial business (i.e., mathematical programming) problems with better

solutions and at a higher speed [as suggested in Column 3, lines 13-16 of Shinagawa et al.], and the combination would provide a system enabling a user to efficiently and quickly solve multi-constraint problems as commonly faced by businesses, and for use as a planning guide to determine the impact of different models on business performance.

As per claim 63, although not taught by Keane, Shinagawa et al. teaches a computer-readable medium according to claim 55, wherein said at least one genetic operator comprises a mutation operator **(mutation process)** which transforms a parent evolvable business model into a new evolvable business model by modifying a characteristic of the parent business model **(changes genes located in certain loci of a chromosome to other values, thereby producing a new individual; The mated parent individuals are then subjected to a crossover process. Crossover algorithms combine one part of one parent chromosome with the other part of the other parent chromosome to produce another chromosome, thereby producing a new individual. The offspring individual produced through such a crossover process inherits some traits from both parents)** [Column 2, lines 37-49].

Both Keane and Shinagawa et al. are directed toward optimizing solutions in business planning situations [e.g., Keane's simulator assists a user in making business performance decisions, as seen in Column 2, lines 52-55, and Shinagawa et al. solves commodity delivery problems, as seen in Column 3, lines 1-7]. Shinagawa et al.

provides a user with a problem solver "for solving mathematical programming problems, which is capable of finding better solutions at a higher speed" [Column 3, lines 13-16]. Keane's system assists a user with solving mathematical problems as well [Column 2, lines 1-23]; therefore, the Examiner submits that it.would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to incorporate the steps of performing an evolutionary method on models, including determining model fitness, selection of models based on their fitness, and transforming models by applying genetic operators to yield new models that incorporate elements of the original models, as taught by Shinagawa et al, with Keane's financial simulations in order to allow Keane to solve its financial business (i.e., mathematical programming) problems with better solutions and at a higher speed [as suggested in Column 3, lines 13-16 of Shinagawa et al.], and the combination would provide a system enabling a user to efficiently and quickly solve multi-constraint problems as commonly faced by businesses, and for use as a planning guide to determine the impact of different models on business performance.

As per claim 64, Keane teaches a computer-readable medium according to claim 55, wherein an evolvable business model comprises a description of at least one of inputs to a business, values output from the said business, transformations of inputs into said business to values output from said business at least in part by the use of capital and labor, and at least one pricing model for said business [see analysis of claim 53 above].

Claim 65 recites limitations already addressed by the rejection of claim 54 above; therefore, the same rejection applies.

Furthermore, Keane is implemented on a computer-readable medium having computer-readable signals stored thereon that define instructions which, as a result of being executed in a computer system having a user interface including a display and an input device **(system 100 includes a central processor unit 101, memory 102 and a user interface 103. the user interface may comprise traditional equipment such as a monitor and printer for displaying information for the user and a keyboard and mouse for entering information)**, instruct the computer system to perform a method for choosing a business model to solve a selected business problem [Column 3, lines 17-21].

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Peter Choi whose telephone number is (571) 272 6971. The examiner can normally be reached on M-F 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tariq Hafiz can be reached on (571) 272-6729. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

PC

March 27, 2007

Romain Jeanty
Primary Examiner
Art Unit 3623